

Appl. No. 09/802,377
Response to Restriction Requirement dated August 5, 2003
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16 claims
Amendments to the Claims:

Please withdraw claims 63-113 and 131-144, leaving claims 114-130 pending.

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

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63. (Withdrawn) A system for monitoring a healthcare process, the system comprising a computer program product, the product comprising:
a code directed to accessing a process controller;
a code directed to an input module coupled to code directed to the process controller, the input module code being adapted to input a plurality of parameters from a process of a healthcare entity;
a code directed to a computer aided process module coupled to the process controller, the computer aided process module code being adapted to compare at least two of the plurality of parameters against a predetermined training set of parameters, and being adapted to determine if the at least two of the plurality of parameters are within a predetermined range of the training set of parameters; and
a code directed to an output module coupled to the process controller, the output module being adapted to output a result based upon operation of the code directed to determining.

64. (Withdrawn) The system of claim 63 wherein the healthcare entity providing a health product.

65. (Withdrawn) The system of claim 63 wherein the plurality of parameters are selected from an intrinsic element or an extrinsic element of the process.

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66. (Withdrawn) The system of claim 63 wherein the input module code, the computer aided process module code, and the output module code are provided in a single computer software program.

67. (Withdrawn) The system of claim 63 wherein the computer aided module code includes at least an algorithm selected from PCA, HCA, KNN CV KNN Prd, SIMCA CV, SIMCA Prd, Canon Prd, Fisher CV, and SCREAM.

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68. (Withdrawn) The system of claim 63 further comprising a code directed to normalizing coupled to the process controller, the normalizing code being adapted to normalize each of the plurality of parameters before input into the computer aided process module.

69. (Withdrawn) The system of claim 63 wherein the training set of parameters are preprocessed in at least the computer aided process module.

70. (Withdrawn) The system of claim 63 wherein the result is an affirmative response or a negative response, the result being displayed on a terminal.

71. (Withdrawn) The system of claim 63 wherein the computer aided process module comprises a library comprising a plurality of processes.

72. (Withdrawn) The system of claim 71 wherein the plurality of processes includes at least a comparing process module, a contrasting process module, and a functional process module.

73. (Withdrawn) A system for monitoring healthcare processes for treating patients, the system comprising a computer code product, the product comprising:

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a code directed to an input module, the input module code being adapted to input a plurality of process parameters from a healthcare process;

a code directed to a library module coupled to the input module code, the library module code including a plurality of computer aided processes, each of the computer aided processes being capable of determining an output based upon a predetermined training set of the plurality of process parameters;

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a code directed to an output module coupled to the library module code, the output module code being adapted to output a result based upon the predetermined training set and the plurality of process parameters; wherein each of the computer aided processes compares at least two of the plurality of process parameters against a portion of the training set of parameters and determines an output based upon at least two of the plurality of process parameters and one or more of the training set of parameters.

74. (Withdrawn) A system for monitoring healthcare processes for anomalies, the system comprising a computer program product, the product comprising:

a code directed to storing a first model in memory;

a code directed to acquiring data from a healthcare process;

a code directed to applying the first model to the data to identify a first predicted descriptor characteristic of a state of the healthcare process; and

a code directed to consulting a first knowledge based system to provide an output based upon the first predicted descriptor.

75. (Withdrawn) The product of claim 74 wherein the model is constructed from a mathematical equation describing a physical law.

76.. (Withdrawn) The product of claim 74 further comprising preprocessing the data prior to applying the model.

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77. (Withdrawn) The product of claim 74 wherein the output is communicated to the process to adjust an operational of the healthcare process.

78. (Withdrawn) The product of claim 74 wherein the output is communicated to an operator to permit monitoring of the state of the healthcare process.

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79. (Withdrawn) The product of claim 74 wherein the output is resident on a server and accessible to a user over a network of computers utilizing a browser software program.

80. (Withdrawn) The product of claim 79 wherein the input is acquired from the healthcare process over a network of computers.

81. (Withdrawn) The product of claim 74 wherein the input is acquired from the healthcare process over a network of computers.

82. (Withdrawn) The product of claim 74 wherein the output is communicated over a network of computers to an associated system, the associated system including at least one of a legacy system, an e-enterprise system, and a desktop application.

83. (Withdrawn) The product of claim 74 wherein the first knowledge based system is an expert system.

84. (Withdrawn) The product of claim 74 further comprising:
a code directed to acquiring initial data from a source at a first time;
a code directed to converting the initial data into electronic form;
a code directed to loading the initial data into memory;

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a code directed to retrieving the initial data from memory;
a code directed to acquiring subsequent data from the source at a
second time;
a code directed to assigning a first descriptor to the initial data and
a second descriptor to the subsequent data;
code directed to constructing the model based upon the initial data,
the subsequent data, the first descriptor, and the second descriptor; and
code directed to storing the model in memory.

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85. (Withdrawn) The product of claim 83 wherein the model is constructed from at least one of a univariate statistical technique, a multivariate statistical technique, a time series analysis, and a neural-based approach.

86. (Withdrawn) The product of claim 83 wherein the model is constructed from one of a group of different algorithms or models stored in a library.

87. (Withdrawn) The product of claim 83 wherein the source is in communication with the healthcare process, the initial data and the subsequent data reflecting prior operation of the healthcare process.

88. (Withdrawn) The product of claim 83 wherein the source is in communication with a second process similar to the process, the initial data and the subsequent data reflecting operation of the second process.

89. (Withdrawn) The product of claim 83 further comprising:
code directed to constructing a second model;
code directed to storing the second model in memory;
code directed to applying the second model to the process data to
identify a second predicted descriptor characteristic of the process data; and

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code directed to consulting the knowledge based system to produce the output based on the first predicted descriptor and the second predicted descriptor.

90. (Withdrawn) The product of claim 88 wherein the second model is constructed based upon the initial data, the subsequent data, the first descriptor, and the second descriptor, such that comparison of the first descriptor and the second descriptor represents a cross-validation.

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91. (Withdrawn) The product of claim 89 wherein the second model is constructed from operation of a second process similar to the process, such that comparison of the first descriptor to the second descriptor represents an external validation.

92. (Withdrawn) The product of claim 89 wherein the knowledge based system is an expert system.

93. (Withdrawn) The product of claim 74 further comprising code configured to receive key preliminary information and to communicate the key preliminary information downstream to the code applying the first model, such that the first predicted descriptor reflects the key preliminary information.

94. (Withdrawn) A method for monitoring healthcare processes, the method comprising:

- storing a first model in a memory;
- acquiring data from a healthcare process;
- applying the first model to the data to identify a first predicted descriptor characteristic of a state of the healthcare process; and
- consulting a first knowledge based system to provide an output based upon the first predicted descriptor.

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95. (Withdrawn) The method of claim 94 wherein the model is constructed from a mathematical equation describing a physical law.

96. (Withdrawn) The method of claim 94 further comprising preprocessing the data prior to applying the model.

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97. (Withdrawn) The method of claim 94 wherein the output is communicated to the healthcare process to adjust an operational parameter of the healthcare process.

98. (Withdrawn) The method of claim 94 wherein the output is communicated to a human operator to permit monitoring of the healthcare process.

99. (Withdrawn) The method of claim 94 wherein the output is resident on a server and accessible to a user through a browser software program.

100. (Withdrawn) The product of claim 99 wherein the input is acquired from the healthcare process over a network of computers.

101. (Withdrawn) The product of claim 94 wherein the input is acquired from the process over a network of computers.

102. (Withdrawn) The method of claim 94 wherein the output is communicated over a network to an associated system, the associated system including at least one of a legacy system, an e-enterprise system, and a desktop application.

103. (Withdrawn) The method of claim 94 wherein the first knowledge based system is an expert system.

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104. (Withdrawn) The method of claim 94 further comprising:
acquiring initial data from a source at a first time;
converting the initial data into electronic form;
loading the initial data into memory;
retrieving the initial data from memory;
acquiring subsequent data from the source at a second time;
assigning a first descriptor to the initial data and a second descriptor to the
subsequent data;
constructing the model based upon the initial data, the subsequent data, the
first descriptor, and the second descriptor; and
storing the model in memory.

105. (Withdrawn) The method of claim 104 wherein the model is
constructed from one of a univariate statistical technique, a multivariate statistical
technique, and a time series analysis.

106. (Withdrawn) The method of claim 104 wherein the model is
constructed from one of a group of different algorithms stored in a library.

107. (Withdrawn) The method of claim 104 wherein the source is in
communication with the healthcare process, the initial data and the subsequent data
reflecting prior operation of the healthcare process.

108. (Withdrawn) The method of claim 104 wherein the source is in
communication with a second process similar to the healthcare process, the initial data
and the subsequent data reflecting operation of the second healthcare process.

109. (Withdrawn) The method of claim 104 further comprising:

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constructing a second model;
storing the second model in memory;
applying the second model to the healthcare process data to identify a
second predicted descriptor characteristic of the healthcare process data; and
consulting the first knowledge based system to produce the output based
upon the first predicted descriptor and the second predicted descriptor.

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110. (Withdrawn) The method of claim 109 wherein the second model is constructed based upon the initial data, the subsequent data, the first descriptor, and the second descriptor, such that comparison of the first descriptor and the second descriptor represents a cross-validation.

111. (Withdrawn) The method of claim 109 wherein the second model is constructed from operation of a second healthcare process similar to the healthcare process, such that comparison of the first descriptor to the second descriptor represents an external validation.

112. (Withdrawn) The method of claim 109 wherein the knowledge based system is an expert system.

113. (Withdrawn) The method claim 94 further comprising receiving key preliminary information and communicating the key preliminary information downstream to the first model, such that the first predicted descriptor reflects the key preliminary information.

114. (Previously Presented) A monitoring system comprising:
a chemical sensor;
a biological sensor;
a radiation sensor;

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a networking module for connecting said chemical, biological, and radiation sensors;
an integration module for integrating sensor data from said chemical, biological, and radiation sensors to form integrated data; and
a preprocessing module for preprocessing said integrated data for further processing by a processing module.

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115. (Previously Presented) The system of claim 114 wherein said chemical sensor is configured to produce a response in the presence of a chemical stimulus selected from the group consisting of a vapor, a gas, a liquid, a solid, an odor or mixtures thereof.

116. (Previously Presented) The system of claim 115 wherein said chemical sensor is selected from the group consisting of a conducting/nonconducting regions sensor, a SAW sensor, a quartz microbalance sensor, a conductive composite sensor, a chemiresistor, a metal oxide gas sensor, an organic gas sensor, a MOSFET, a piezoelectric device, an infrared sensor, a sintered metal oxide sensor, a Pd-gate MOSFET, a metal FET structure, a electrochemical cell, a conducting polymer sensor, a catalytic gas sensor, an organic semiconducting gas sensor, a solid electrolyte gas sensors, and a piezoelectric quartz crystal sensor.

117. (Previously Presented) The system of claim 114 wherein said radiation sensor is configured to produce a response in the presence of a stimulus selected from the group consisting of gamma rays, X-rays, ultra-violet rays, visible radiation, infrared, microwaves, and radio waves.

118. (Previously Presented) The system of claim 114 wherein said chemical, biological, and radiation sensors are wireless sensors configured to communicate with said networking module via a communication mode selected from the

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group consisting of infrared communications, radiofrequency communications, and combinations thereof.

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119. (Previously Presented) The system of claim 114 wherein said plurality of sensors are non-permanent sensors.

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120. (Previously Presented) The system of claim 114 further comprising a processing module, wherein said processing module comprises:
a storage module for storing a model of a phenomenon;
an application module for applying said model to said integrated data; and
a generation module for generating a descriptor of a state of a phenomenon using said storage and said application modules.

121. (Previously Presented) The system of claim 120 further comprising a model generation module for generating said model of a phenomenon.

122. (Previously Presented) The system of claim 121 wherein said model generation module generates a model derived from an event producing at least one of chemical, biological, and radiation stimuli in the environment.

123. (Previously Presented) The system of claim 121 wherein said model generation module comprises a neural network analysis module.

124. (Previously Presented) The system of claim 114 further comprising a processing module, wherein said processing module comprises a module for transmitting a portion of said integrated data to a data interpretation system.

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125. (Previously Presented) The system of claim 114 further comprising a processing module, wherein said processing modules comprise a diagnostic module.

126. (Previously Presented) The system of claim 125 wherein said diagnostic module comprises modules for identifying an event producing at least one of a chemical, biological, and radiation stimulus.

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127. (Previously Presented) The system of claim 114 further comprising a processing module, wherein said processing module further comprises modules for providing a notification regarding an occurrence of an event.

128. (Previously Presented) The system of claim 114 further comprising a processing module, wherein said processing module further comprises modules for initiating follow-on actions.

129. (Previously Presented) The system of claim 128 wherein said follow-on actions include correction means responsive to an event.

130. (Previously Presented) The system of claim 114 wherein said networking module further comprises:

- a short-range transceiver node, configured to be connected with said chemical, biological, and radiation sensors;
- a local hub, connected with said short range transceiver node;
- and a long-range transceiver hub connected with said pre-existing monitoring system, wherein said long-range transceiver hub is configured to exchange data with said local hub.

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131. (Withdrawn) A method for detecting an event, the method comprising:
storing a first model in a memory;
acquiring data from at least one of a chemical sensor, a biological sensor, and a radiation sensor;
applying the first model to the data to identify a first predicted descriptor characteristic of a state; and
consulting a first knowledge based system to provide an output based upon the first predicted descriptor.

132. (Withdrawn) The method of claim 131 wherein the model is constructed based upon occurrence of an event producing at least one of chemical, biological, and radiation stimuli.

133. (Withdrawn) The method of claim 131 further comprising preprocessing the data prior to applying the model.

134. (Withdrawn) The method of claim 131 wherein the output is communicated to alert a human monitor.

135. (Withdrawn) The method of claim 131 wherein the output is resident on a server and accessible to a user through a browser software program.

136. (Withdrawn) The product of claim 131 wherein the input is acquired from at least one of the chemical, biological, and radiation sensors over a network of computers.

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137. (Withdrawn) The method of claim 131 wherein the output is communicated over a network to an associated system, the associated system including at least one of a legacy system, an e-enterprise system, and a desktop application.

138. (Withdrawn) The method of claim 131 wherein the first knowledge based system is an expert system.

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139. (Withdrawn) The method of claim 131 further comprising:
acquiring initial data from one of the chemical, biological, and radiation sensors at a first time;
converting the initial data into electronic form;
loading the initial data into memory;
retrieving the initial data from memory;
acquiring subsequent data from the at least one of chemical, biological, and radiation sensors at a second time;
assigning a first descriptor to the initial data and a second descriptor to the subsequent data;
constructing the model based upon the initial data, the subsequent data, the first descriptor, and the second descriptor; and
storing the model in memory.

140. (Withdrawn) The method of claim 139 wherein the model is constructed from one of a univariate statistical technique, a multivariate statistical technique, and a time series analysis.

141. (Withdrawn) The method of claim 139 wherein the model is constructed from one of a group of different algorithms stored in a library.

142. (Withdrawn) The method of claim 139 further comprising:

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constructing a second model;
storing the second model in memory;
applying the second model to the data from the at least one of the
chemical, biological, and radiation sensors to identify a second predicted descriptor
characteristic of the data; and
consulting the first knowledge based system to produce the output based
upon the first predicted descriptor and the second predicted descriptor.

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143. (Withdrawn) The method of claim 142 wherein the second model is constructed based upon the initial data, the subsequent data, the first descriptor, and the second descriptor, such that comparison of the first descriptor and the second descriptor represents a cross-validation.

144. (Withdrawn) The method of claim 131 wherein the knowledge based system is an expert system.